Claims

[c1]   *1.*An authentication mechanism, for a network where a spanning tree protocol is performed comprising a plurality of bridges, a plurality of layers, a plurality of switches, and a plurality of ports, the authentication mechanism comprising:

a plurality of bridge protocol data units;

a permit list; and

a plurality of authentication rules.

[c2]   *2.*The authentication mechanism as recited in claim *1,* wherein the bridge protocol data unit comprises:

a root identifier field; and

a bridge identifier field.

[c3]   *3.*The authentication mechanism as recited in claim *1,* wherein the permit list comprises a plurality of bridge addresses allowed in the bridge protocol data units that are received.

[c4]   *4.*The authentication mechanism as recited in claim *1,* wherein the authentication rules comprise:

if the bridge protocol data unit that is received uses the bridge address of the switch, the bridge protocol data

unit is permitted;

if the bridge address of the bridge identifier does not match the bridge addresses in the permit list, the bridge protocol data unit that is received is ignored; and

if the bridge address of the root identifier does not match the bridge addresses in the permit list, the bridge protocol data unit that is received is ignored.

[c5] 5.The authentication mechanism as recited in claim *1*, wherein the port further comprises a state machine.

[c6] 6.The authentication mechanism as recited in claim *4*, wherein when the port receiving the bridge protocol data unit that fails the bridge address permit list, the authentication rules further comprises:

the state machine of the spanning tree protocol port being reset;

the bridge protocol data units that pass the permit list being processed;

an operEdge variable being set to false if the port is an edge port; and

resuming when none of the bridge point data units failing the permit list have been received for a period.

[c7] 7.The authentication mechanism as recited in claim *6*, wherein the period is in the order of tens of seconds.

[c8]   8.The authentication mechanism as recited in claim 6, wherein the authentication rules are applicable when the spanning tree protocol is enabled on the switch.

[c9]   9.The authentication mechanism as recited in claim 1, wherein the bridge address of the bridge potentially being a root bridge is specified in the permit list, for triggering a root identifier checking.

[c10]   10.The authentication mechanism as recited in claim 1, wherein all the switches in a bridge domain that is trusted are specified in the permit list.